

Appln No. 09/882,351
Amdt date March 1, 2004
Reply to Office action of October 1, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of preparing a plurality of encapsulated particles for use as a positive active material for a lithium secondary battery comprising:

preparing a coating solution by dissolving in a solvent a conductive polymer[;] selected from the group consisting of polypyrrole, polyaniline, polythiophene, polyacetylene, derivatives thereof, and mixtures thereof; a conductive agent[;]; and an ionic conductive polymer different from the conductive polymer ~~in a solvent~~; and

coating lithium complex metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution.

2. (Original) The method of claim 1, wherein said coating step is carried out by using an agglomerator or a spray dryer.

3. (Cancelled)

4. (Original) The method of claim [3]1, wherein said conductive polymer is emeraldine base or a polymer in doping state.

5. (Cancelled)

6. (Cancelled)

7. (Previously Presented) The method of claim 1, wherein said ionic conductive polymer is selected from the group consisting of polyethylene oxide, polypropylene oxide, polyethylene glycol, derivatives thereof, salts thereof and mixtures thereof.

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8. (Original) The method of claim 1, wherein said lithium complex metal oxide is selected from the group consisting of $\text{Li}_x\text{Mn}_{1-y}\text{M}'_y\text{A}_2$, $\text{Li}_x\text{Mn}_{1-y}\text{M}'_y\text{O}_{2-z}\text{A}_z$, $\text{Li}_x\text{Mn}_2\text{O}_{4-z}\text{A}_z$, $\text{Li}_x\text{Mn}_{2-y}\text{M}'_y\text{A}_4$, $\text{Li}_x\text{M}_{1-y}\text{M}''_y\text{A}_2$, $\text{Li}_x\text{MO}_{2-z}\text{A}_z$, $\text{Li}_x\text{Ni}_{1-y}\text{Co}_y\text{O}_{2-z}\text{A}_z$, $\text{Li}_x\text{Ni}_{1-y-z}\text{Co}_y\text{M}''_z\text{A}_\alpha$, and $\text{Li}_x\text{Ni}_{1-y-z}\text{Mn}_y\text{M}'_z\text{A}_\alpha$, wherein $0.95 \leq x \leq 1.1$, $0 \leq y \leq 0.5$, $0 \leq z \leq 0.5$, $0 < \alpha \leq 2$, M is Ni or Co, M' is at least one element selected from the group consisting of Al, Ni, Co, Cr, Fe, Mg, Sr, V, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, and Lr, M'' is at least one element selected from the group consisting of Al, Cr, Mn, Fe, Mg, Sr, V, Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, and Lr, and A is selected from the group consisting of O, F, S and P.

9. (Original) The method of claim 8, wherein said lithium complex metal oxide is selected from the group consisting of $\text{Li}_x\text{Mn}_{1-y}\text{M}'_y\text{A}_2$, $\text{Li}_x\text{Mn}_{1-y}\text{M}'_y\text{O}_{2-z}\text{A}_z$, $\text{Li}_x\text{Mn}_2\text{O}_{4-z}\text{A}_z$, and $\text{Li}_x\text{Mn}_{2-y}\text{M}'_y\text{A}_4$.

10. (Original) The method of claim 1, wherein the amount of coated conductive polymer ranges from 1 to 30 wt% based on the weight of the lithium metal oxide.

11. (Original) The method of claim 1, wherein the amount of coated conductive polymer ranges from 1 to 10 wt% based on the weight of the lithium metal oxide.

12. (Original) The method of claim 1, wherein the lithium complex metal oxide is coated with the coating solution to form a coating layer having a thickness ranging from 0.1 to 1 μm .

13. (Previously Presented) The method of claim 1, wherein the lithium complex metal oxide particles are coated generally evenly over their entire surfaces.

14. (Currently Amended) A method of preparing a plurality of encapsulated particles for use as a positive active material for a lithium secondary battery comprising:

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preparing a coating solution by dissolving in a solvent a conductive polymer[₅] selected from the group consisting of polypyrrole, polyaniline, polythiophene, polyacetylene, derivatives thereof, and mixtures thereof; a conductive agent[₇]; and an ionic conductive polymer different from the conductive polymer ~~in a solvent~~; and

coating lithium-containing manganese-based metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution.

15. (Cancelled)

16. (Cancelled)

17. (Previously Presented) The method of claim 14, wherein the amount of coated conductive polymer ranges from 1 to 30 wt% based on the weight of the lithium metal oxide.

18. (Previously Presented) The method of claim [46]14, wherein the amount of coated conductive polymer ranges from 1 to 10 wt% based on the weight of the lithium metal oxide.

19. (Previously Presented) The method of claim 14, wherein the lithium complex metal oxide is coated with the coating solution to form a coating layer having a thickness ranging from 0.1 to 1 μm .

20. (Currently Amended) The method of claim 14, wherein the lithium complex metal oxide particles are coated generally evenly over their entire surfaces.

21. (Previously Presented) The method of claim 1, wherein the lithium complex metal oxide particles are coated over their entire surfaces.

22. (Previously Presented) The method of claim 14, wherein the lithium complex metal oxide particles are coated over their entire surfaces.

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23. (Currently Amended) The method of claim [3]14, wherein said ionic conductive polymer is selected from the group consisting of polyethylene oxide, polypropylene oxide, polyethylene glycol, derivatives thereof, salts thereof and mixtures thereof.